

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013602

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-12 received by this Authority on 20.01.2006 by fax
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/2, 2/2 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-12</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	Reference is made to the following documents:		
	D3: WO 00/20104 A (MEMBRAFLOW GMBH & CO. KG FILTERSYSTEME; BLAESE, DIETER; FEUERPEIL, HAN) 13 April 2000 (2000-04-13)		
	D4: WO/0226363		
	D5: NL 1006390		
1.	Novelty and inventive step		
1.1	<p>The present claim 1 concerns a membrane system with a plurality of membrane modules and an aeration structure. Separate feed, permeate and optionally retentate chambers are also mentioned. None of the available documents discloses all the features defined in claim 1. Either a structure consisting of a plurality of modules (D3) or an aeration of the feed stream (D4, D5) is described. The combination of a plurality of modules addresses the problem of increasing the effective surface whilst assigning the arrangement a particularly space-saving design, i.e., one that is compact and simplifies assembly. In contrast,</p>		

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	<p>the gassing of the feed stream relates to the generation of turbulence in order to prevent the formation of a filter cake, all membranes or membrane modules being hit by an equal amount of air (see D3-D5, drawings).</p> <p>The subject matter of claim 1 of the present application differs from every available document in addition in that a side feed distribution chamber is provided so that the feed stream enters the feed chamber normal to the through-flow direction of the filter modules. Novelty is thus established (PCT Article 33(2)).</p> <p>1.2 In contrast to the membrane systems of D4 and D5, which are also provided with aeration, the current system contains a plurality of the same filter modules consisting of a number of membrane units arranged in parallel. In such an arrangement the problem arises of thoroughly mixing the feed stream and the air and of impinging upon the membrane units equally. That problem is solved in that the feed stream does not enter the feed chamber centrally, but rather transversely to the direction of flow of the membrane system, resulting in a turbulent flow, thereby ensuring even impingement of the membranes. That problem and the proposed solution cannot be taken from the available documents. The requirements of PCT Article 33(3) are thus satisfied.</p> <p>1.3 Claims 2-12 are formally dependent on claim 1 and</p>

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	<p>therefore likewise meet the PCT requirements for novelty and inventive step.</p> <p>3. Industrial applicability</p> <p>Industrial applicability is obvious.</p>

Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Further defects

On page 4, lines 18-21 of the description the terms retentate chamber and permeate chamber have been mixed up (reference sign "3").